

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1 – 22. (Cancelled).

23. (Currently Amended) A decoupler assembly for transferring torque between a drive shaft and an endless drive element of an automotive engine, the decoupler assembly comprising:

a hub adapted to be fixedly secured to the shaft, the hub extending axially between a first hub end and a second hub end;

a pulley disposed concentrically about the hub and adapted to be drivingly engaged with the endless drive element;

a bearing between the hub and the pulley, the bearing supporting the pulley for rotation about a rotational axis of the hub;

a carrier rotatably mounted about the second hub end;

a clutch element disposed axially between the hub and the pulley and coupled to the carrier for rotation therewith, the clutch element being configured to transmit rotary power from the pulley to the carrier and to enabling overrunning of the hub relative to the pulley;

a torsion spring extending axially between the hub and the carrier, a first end of the torsion spring being engaged to the carrier, a second end of the torsion spring

opposite the first end of the torsion spring being coupled to the hub such that the torsion spring is configured to transfer torque from the carrier to the hub; and

a thrust plate fixedly mounted on the second end of the hub, the thrust plate limiting movement of the carrier in a direction opposite the torsion spring;

wherein one of the carrier and the thrust plate includes an anti-ramp up feature, wherein the other one of the carrier and the thrust plate includes a circumferentially extending slot into which the anti-ramp up feature is received, the slot having a first slot end and a second slot end, the anti-ramp up feature traveling within the slot between the first slot end and the second slot end for limiting rotation between the carrier and the thrust plate ~~wherein torsion spring is axially compressed between the hub and the carrier.~~

24. (Previously Presented) The decoupler assembly of Claim 23 wherein the torsion spring is compressed axially between the hub and the carrier.

25. (Previously Presented) The decoupler assembly of Claim 23 wherein the carrier includes a helical first slot formed on an axial face thereof, the helical first slot defining a ramped first locating surface terminating at a first abutment wall and wherein the first end of the torsion spring abuts the first abutment wall.

26. (Currently Amended) The decoupler assembly of Claim 24 Claim 25 wherein the hub includes a helical second slot formed therein concentric about the rotational axis of the hub, the helical second slot defining a ramped second locating surface terminating at a second abutment wall and wherein the second end of the torsion spring abuts the second abutment wall.

27. (Canceled)

28. (Currently Amended) The decoupler assembly of Claim 27 Claim 23 wherein the clutch element is in a first condition that inhibits transmission of rotary power from the pulley to the carrier when the anti-ramp up feature is positioned at the first slot end and wherein the clutch element is in a second condition that facilitates transmission of rotary power from the pulley to the carrier when the anti-ramp up feature is positioned at the second slot end.

29. (Previously Presented) The decoupler assembly of Claim 28 wherein the clutch element is a wrap spring.

30. (Previously Presented) The decoupler assembly of Claim 29 wherein a first end of the wrap spring is fixedly coupled to the carrier.

31. (Previously Presented) The decoupler assembly of Claim 30 wherein the wrap spring directly engages the pulley when the anti-ramp up feature is positioned at the second slot end.

32. (Canceled)

33. (Previously Presented) The decoupler assembly of Claim 32, wherein the anti-ramp up feature is fixedly coupled to the carrier.

34. (Previously Presented) The decoupler assembly of Claim 33, wherein the anti-ramp up feature and the carrier are unitarily and integrally formed.

35 - 37. (Canceled)

38. (Previously Presented) The decoupler assembly of Claim 23, wherein the bearing includes a plurality of bearing elements.

39. (Previously Presented) The decoupler assembly of Claim 38, wherein the bearing elements comprise bearing balls.

40. (Currently Amended) The decoupler assembly of Claim 23 A decoupler assembly for transferring torque between a drive shaft and an endless drive element of an automotive engine, the decoupler assembly comprising:

a hub adapted to be fixedly secured to the shaft, the hub extending axially between a first hub end and a second hub end;

a pulley disposed concentrically about the hub and adapted to be drivingly engaged with the endless drive element;

a bearing between the hub and the pulley, the bearing supporting the pulley for rotation about a rotational axis of the hub;

a carrier rotatably mounted about the second hub end;

a torsion spring extending axially between the hub and the carrier, a first end of the torsion spring being engaged to the carrier, a second end of the torsion spring opposite the first end of the torsion spring being coupled to the hub such that the torsion spring is configured to transfer torque from the carrier to the hub; and

a thrust plate fixedly mounted on the second end of the hub;

wherein one of the carrier and the thrust plate includes an anti-ramp up feature, wherein the other one of the carrier and the thrust plate includes a circumferentially extending slot into which the anti-ramp up feature is received, the slot having a first slot end and a second slot end, the anti-ramp up feature traveling within the slot between the first slot end and the second slot end for limiting rotation between the carrier and the thrust plate; and

wherein a clutch element is disposed between the hub and the pulley for selectively transmitting rotary power from the pulley to the carrier and enabling overrunning of the hub relative to the pulley.

41. (Previously Presented) The decoupler assembly of Claim 40 wherein the clutch element is in a first condition that inhibits transmission of rotary power from the pulley to the carrier when the anti-ramp up feature is positioned at the first slot end and wherein the clutch element is in a second condition that facilitates transmission of rotary power from the pulley to the carrier when the anti-ramp up feature is positioned at the second slot end.

42. (Previously Presented) The decoupler assembly of Claim 41 wherein the clutch element is a wrap spring.

43. (Previously Presented) The decoupler assembly of Claim 42 wherein a first end of the wrap spring is fixedly coupled to the carrier.

44. (Previously Presented) The decoupler assembly of Claim 43 wherein the wrap spring directly engages the pulley when the anti-ramp up feature is positioned at the second slot end.

45. (Canceled)

46. (Currently Amended) The decoupler assembly of Claim 45 Claim 43, wherein the anti-ramp up feature is fixedly coupled to the carrier.

47. (Previously Presented) The decoupler assembly of Claim 46, wherein the anti-ramp up feature and the carrier are unitarily and integrally formed.

48 - 50. (Canceled)

51. (Currently Amended) A decoupler assembly for transferring torque between a drive shaft and an endless drive element of an automotive engine, the decoupler assembly comprising:

a hub adapted to be fixedly secured to the shaft, the hub extending axially between a first hub end and a second hub end;

a pulley disposed concentrically about the hub and adapted to be drivingly engaged with the endless drive element;

a bearing between the hub and the pulley, the bearing supporting the pulley for rotation about a rotational axis of the hub;

a carrier rotatably mounted about the second hub end;

a torsion spring extending axially between the hub and the carrier, a first end of the torsion spring being engaged to the carrier, a second end of the torsion spring opposite the first end of the torsion spring being coupled to the hub such that the torsion spring is configured to transfer torque from the carrier to the hub; and

a thrust plate fixedly mounted on the second end of the hub;

wherein one of the carrier and the thrust plate includes an anti-ramp up feature, wherein the other one of the carrier and the thrust plate includes a circumferentially extending slot into which the anti-ramp up feature is received, the slot having a first slot end and a second slot end, the anti-ramp up feature traveling within the slot between the first slot end and the second slot end for limiting rotation between the carrier and the thrust plate ~~wherein torsion spring is axially compressed between the hub and the carrier;~~

wherein the torsion spring is compressed axially between the hub and the carrier; wherein the carrier includes a helical first slot formed on an axial face thereof, the helical first slot defining a ramped first locating surface terminating at a first abutment wall and wherein the first end of the torsion spring abuts the first abutment wall;

herein the hub includes a helical second slot formed therein concentric about the rotational axis of the hub, the helical second slot defining a ramped second locating surface terminating at a second abutment wall and wherein the second end of the torsion spring abuts the second abutment wall;

wherein a clutch element is disposed between the hub and the pulley for selectively transmitting rotary power from the pulley to the carrier and enabling overrunning of the hub relative to the pulley;

wherein the clutch element is in a first condition that inhibits transmission of rotary power from the pulley to the carrier when the anti-ramp up feature is positioned at the first slot end and wherein the clutch element is in a second condition that facilitates transmission of rotary power from the pulley to the carrier when the anti-ramp up feature is positioned at the second slot end;

wherein the clutch element is a wrap spring that directly engages the pulley when the anti-ramp up feature is positioned at the second slot end; and

wherein a first end of the wrap spring is fixedly coupled to the carrier; and

~~wherein a second end of the wrap spring is a free end that is not fixedly coupled to the carrier, the hub or the pulley.~~

52. (Previously Presented) The decoupler assembly of Claim 51, wherein the anti-ramp up feature is fixedly coupled to the carrier.

53. (Previously Presented) The decoupler assembly of Claim 52, wherein the anti-ramp up feature and the carrier are unitarily and integrally formed.

54. (Withdrawn) The decoupler assembly of Claim 51, wherein the anti-ramp up feature is fixedly coupled to the thrust plate.

55. (Withdrawn) The decoupler assembly of Claim 54, wherein the anti-ramp up feature and the thrust plate are unitarily and integrally formed.

56. (Withdrawn) The decoupler assembly of Claim 54, wherein the slot is formed in an axial end face of the carrier on a side of the carrier opposite the torsion spring.

57. (New) The decoupler assembly of Claim 30, wherein the anti-ramp up feature is fixedly coupled to the thrust plate.

58. (New) The decoupler assembly of Claim 57, wherein the anti-ramp up feature and the thrust plate are unitarily and integrally formed.

59. (New) The decoupler assembly of Claim 58, wherein the slot is formed in an axial end face of the carrier on a side of the carrier opposite the torsion spring.

60. (New) The decoupler assembly of Claim 43, wherein the anti-ramp up feature is fixedly coupled to the thrust plate.

61. (New) The decoupler assembly of Claim 60, wherein the anti-ramp up feature and the thrust plate are unitarily and integrally formed.

62. (New) The decoupler assembly of Claim 61, wherein the slot is formed in an axial end face of the carrier on a side of the carrier opposite the torsion spring.